

Flight Scientist Report  
Friday 5/14/2021 ACTIVATE RF63

Flight Type: Statistical Survey Flight

Flight Route: ATLIC ZIBUT 3669N ZIBUT ATLIC

Special Notes: seemed to be two layers of clouds (low and mid-level). As the remote sensors pick up on the mid-level cloud, the Falcon probed both layers rather than just the lower layer.

### **King Air**

Pilot report (Jamison): 2-ship cooperative flight with the HU-25; routing ATLIC-ZIBUT-3669N-ZIBUT-ATLIC, FL280. 4x dropsondes deployed, ZIBUT, turn point, 1/2 way back to ZIBUT, in vcty of TURET (approx. 1/2 between ATLIC and KLFI). Commenced descent out of FL280 approximately 30nm east of ATLIC on return to field, crossing ATLIC at FL210. Winds at altitude ~ 100 kts from the west; maintained reasonable proximity with HU-25 by delaying takeoff 5 min after HU-25 takeoff. Exceptionally clear visibility at altitude.

3.7 hrs

Flight scientist report (Harper): The UC12 took off just after the HU25 staying coincident throughout flight to ZIBUT and the outbound turnaround point. Conditions were very clear from the midpoint between ATLIC and ZIBUT until reaching the expected cloud deck shortly after the turn at ZIBUT. Cloud tops varied between 6 and 10kft on the east-southeast leg and no cirrus was observed throughout the flight. A consistent weak aerosol layer (possibly dust) existed at 22kft throughout the east-southeast leg. A minor instrument problem with HSRL occurred at the outbound turn but was quickly remedied within 10minutes. Four sondes were dropped: 1<sup>st</sup> outbound just after ZIBUT, 2<sup>nd</sup> dropped just before eastern outbound turn. 3<sup>rd</sup>, dropped inbound between easternmost point and ZIBUT, 4<sup>th</sup> dropped between ATLIC and TURRET during the descent.

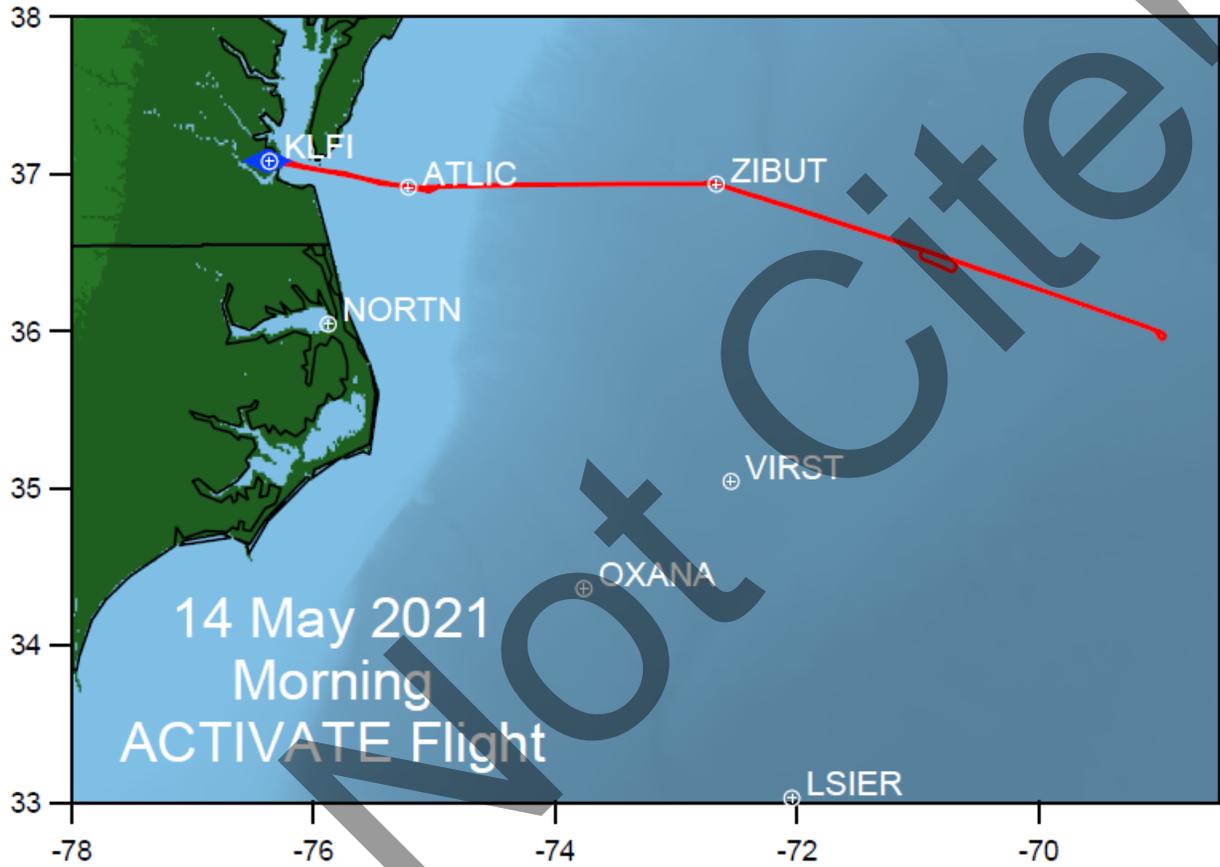
No issues with RSP or AVAPS.

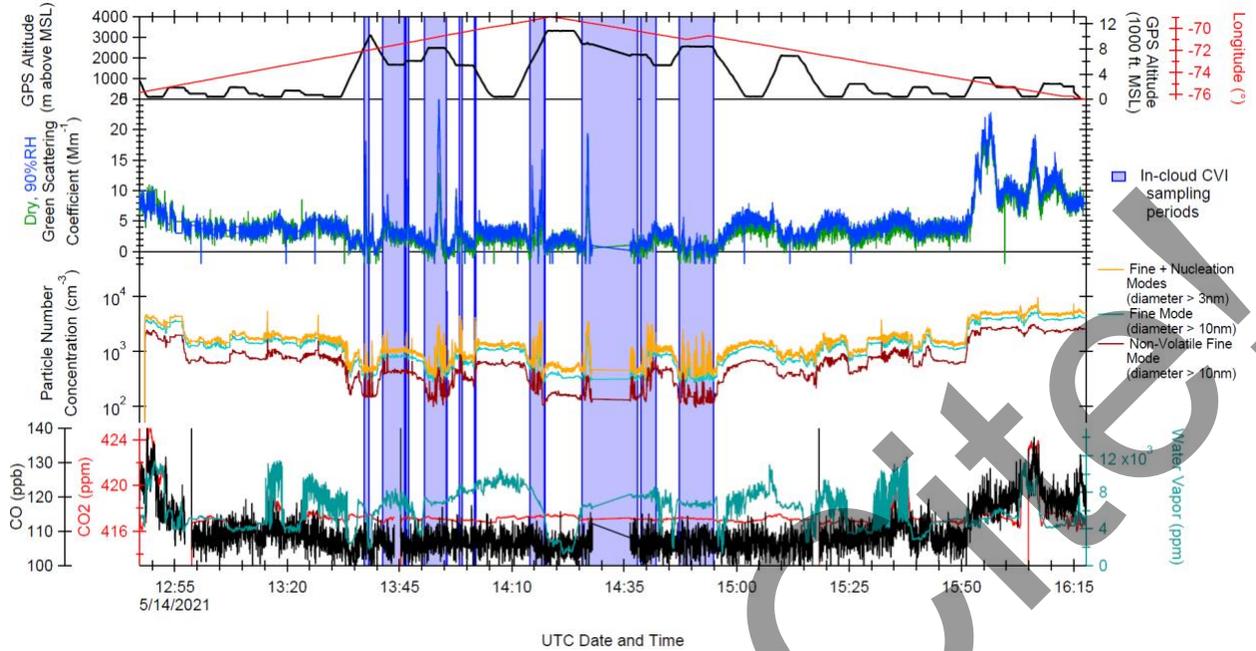
### **Falcon**

Pilot report ():

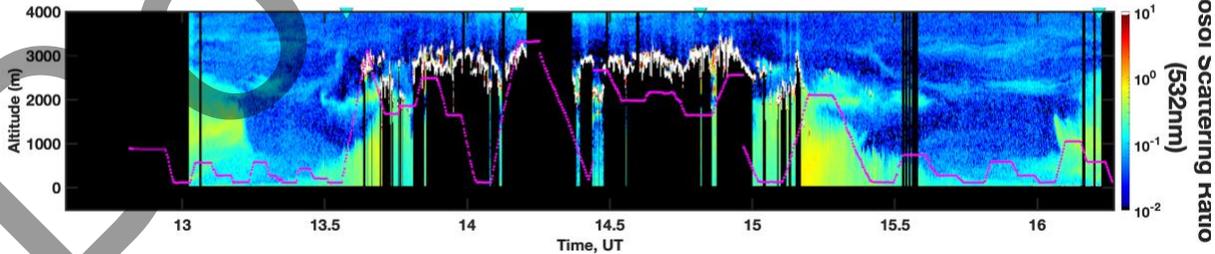
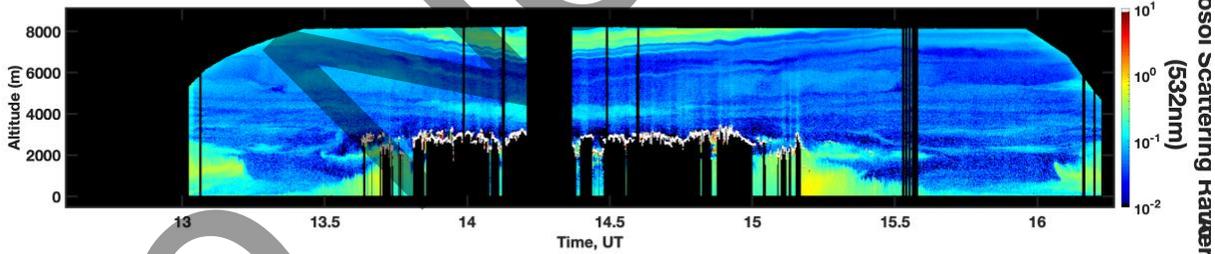
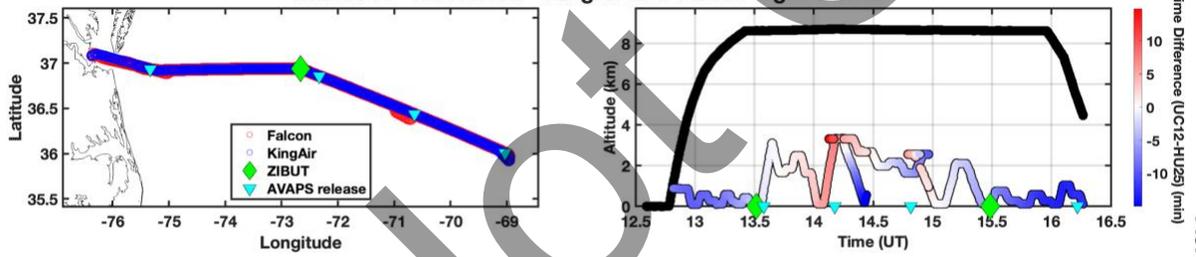
Flight scientist report (Crosbie): Similar conditions to previous flight. Clear modules to ZIBUT. Cloud development across the edge of the warm SST. The cloud was split into two layer maxima with a few

clouds developing from the lower layer and connecting to the upper layer which had a more stratiform appearance and appeared to be detraining from the developed cumulus below. The focus was shifted to the upper layer in order to better align with the remote sensing. On return into the clear region, the sea state appeared to calm noticeably. (6.5 clear, 2 full cloudy)





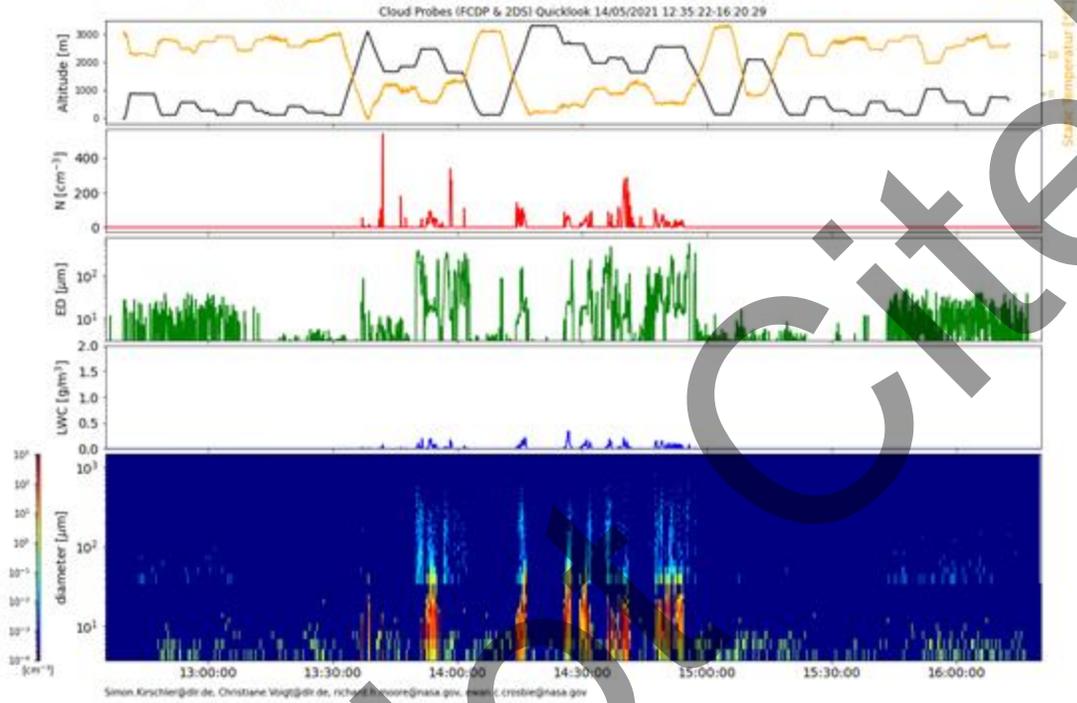
20210514 - ACTIVATE - KingAir and Falcon flight tracks



Aerosol Scattering Ratio (532nm)

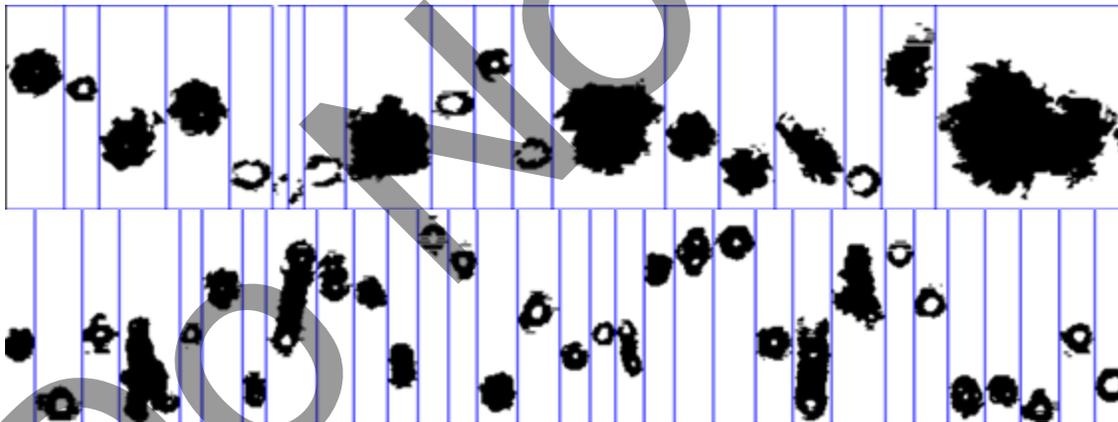
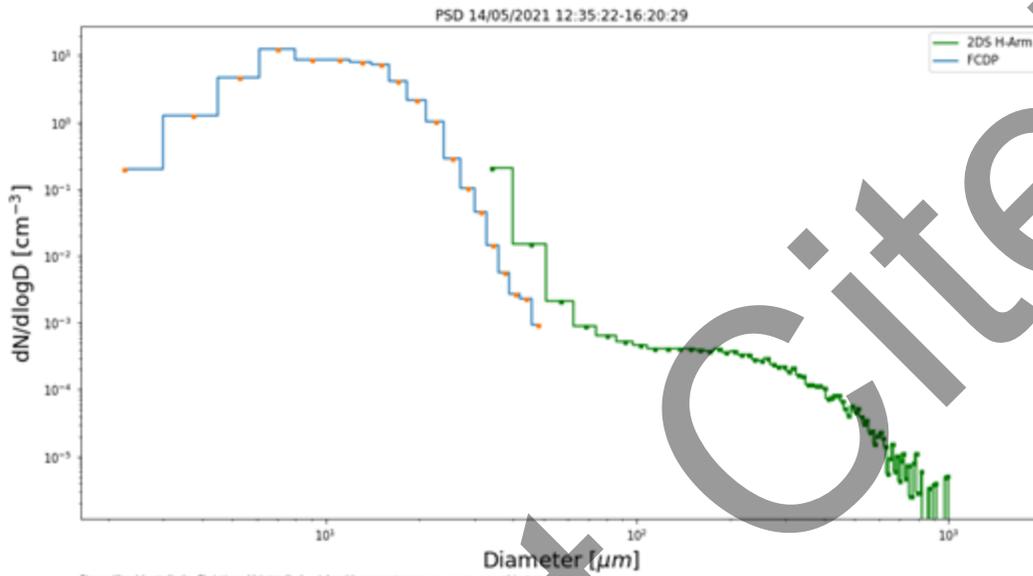
# Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

preliminary data, only for quicklook use  
Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



# PSD ACTIVATE

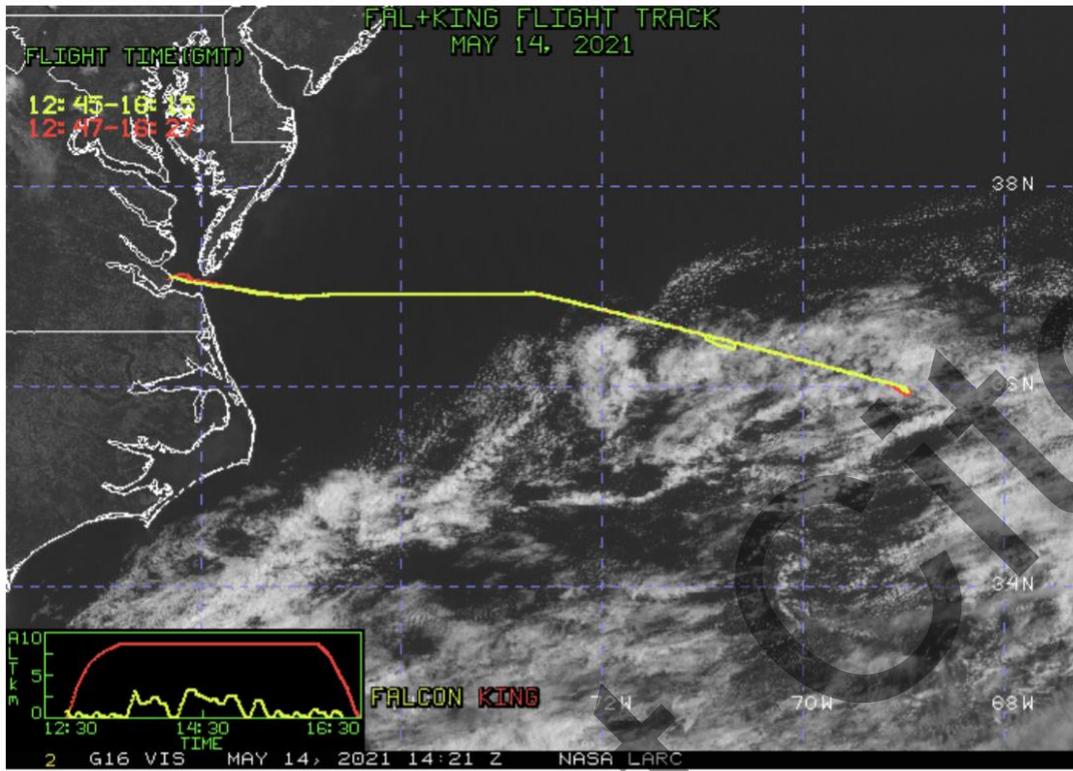
preliminary data, only for quicklook use  
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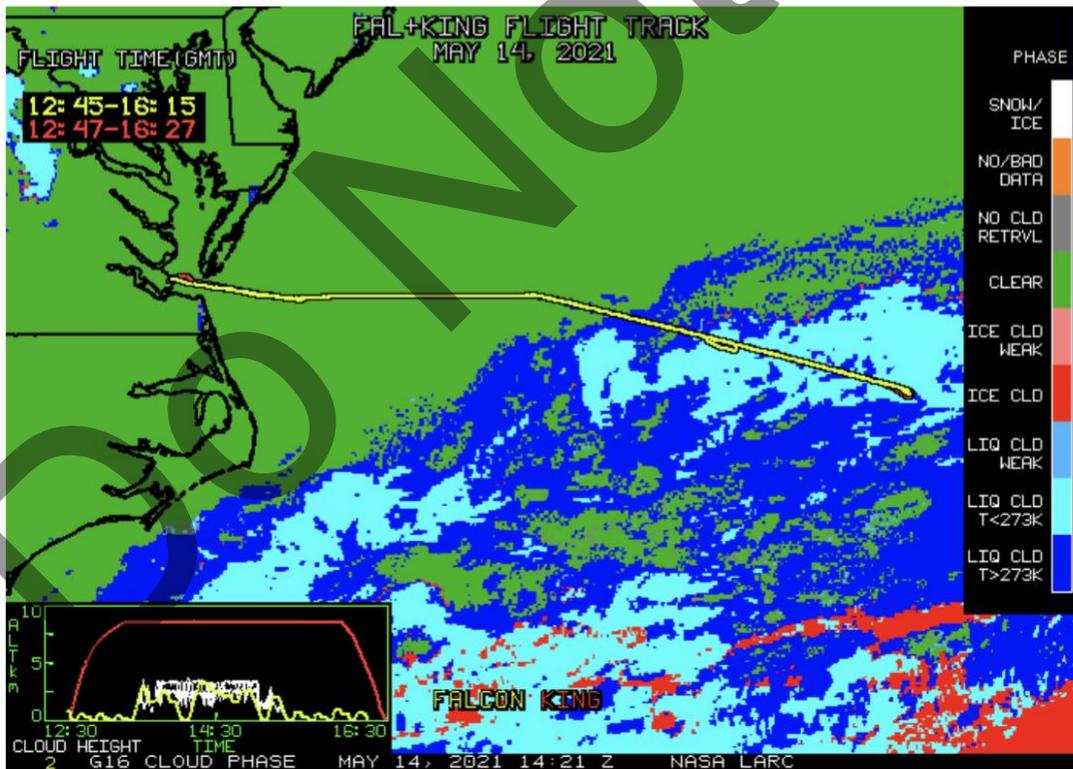
Primarily mixed-phase clouds during flight.

NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 63, 14:21 UTC May 14, 2021

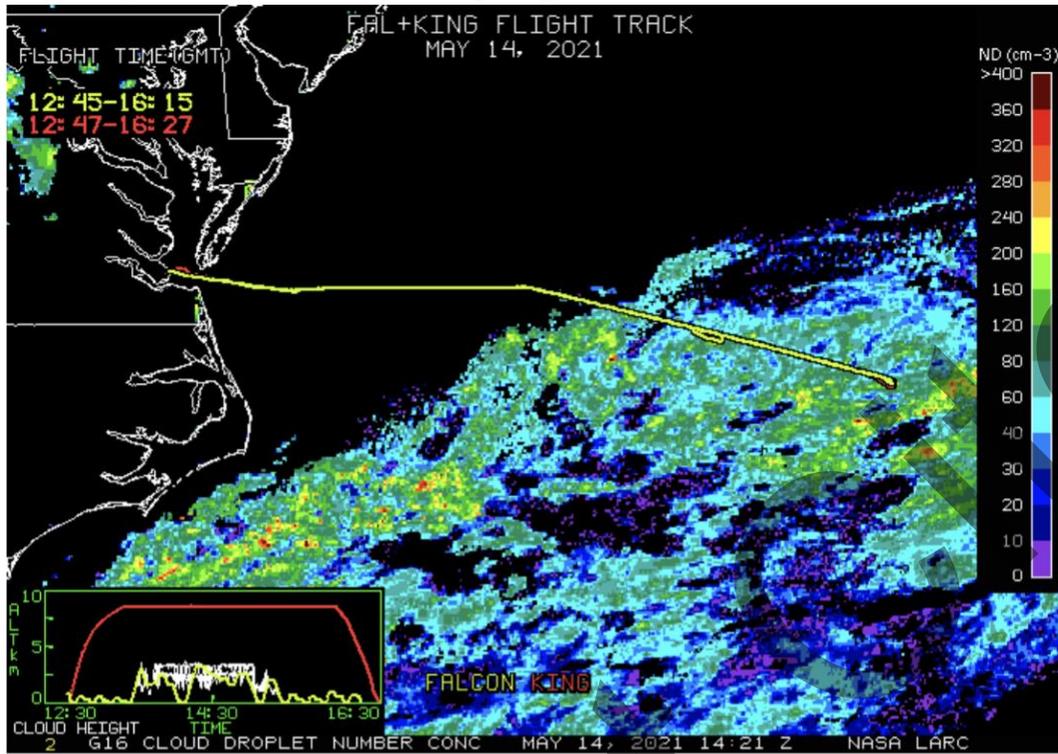
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

